UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF COMMERCIAL FISHERIES

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY

November 1963

Part II–Fishing Information*

Sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists

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Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 6317, Pt. Loma Station
San Diego 6, California

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SEA SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN
NOVEMBER 1963

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The following organizations and stations contributed data for the November 1963 charts:

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U.S. Weather Bureau Port Meteorological Office, Cristobal, Canal Zone
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U.S. Bureau of Commercial Fisheries Biological Laboratories, Honolulu, Hawaii; Seattle, Washington
U.S. Bureau of Commercial Fisheries, Exploratory Fishing and Gear Research Base, Seattle, Washington
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Hopkins Marine Station, Pacific Grove, California by J. P. Balesteri
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Inter-American Tropical Tuna Commission, La Jolla and Terminal Island, California
Kelco Company, San Diego, California
Pacific Oceanographic Group, Nanaimo, British Columbia, by H. J. Hollister from observations by R. W. Collins at Quatsino Lightstation; N. R. Shrimpton at Cape St. James Light; B. Stuart at Amphitrite Point Light; C. Marshall at Langara Island Light
Scripps Institution of Oceanography, La Jolla, California by Margaret Robinson and Hans Klein

Charts

Figure 1.--Mean sea surface temperatures (°F) derived from approximately 8000 observations. Squares show temperatures at weather-ship stations. Numerals on shore are temperatures at coastal and light stations.

Figure 2.--Deviation of sea surface temperatures (°F) from long term mean charts of H.O. 225. Hatched areas are colder than mean.

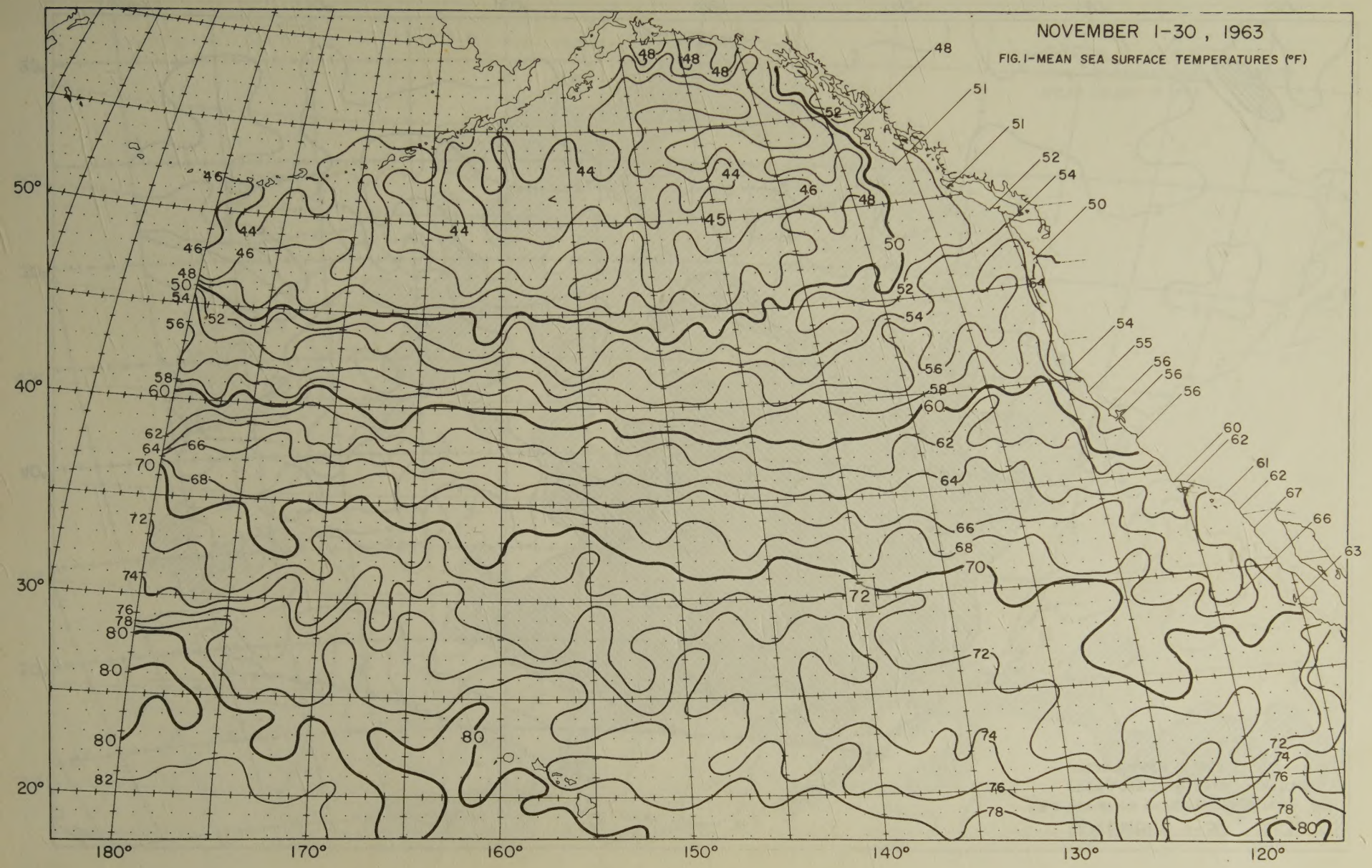
Figure 3.--Deviation of sea surface temperatures (°F) from those of November 1962. Hatched areas are colder than 1962.

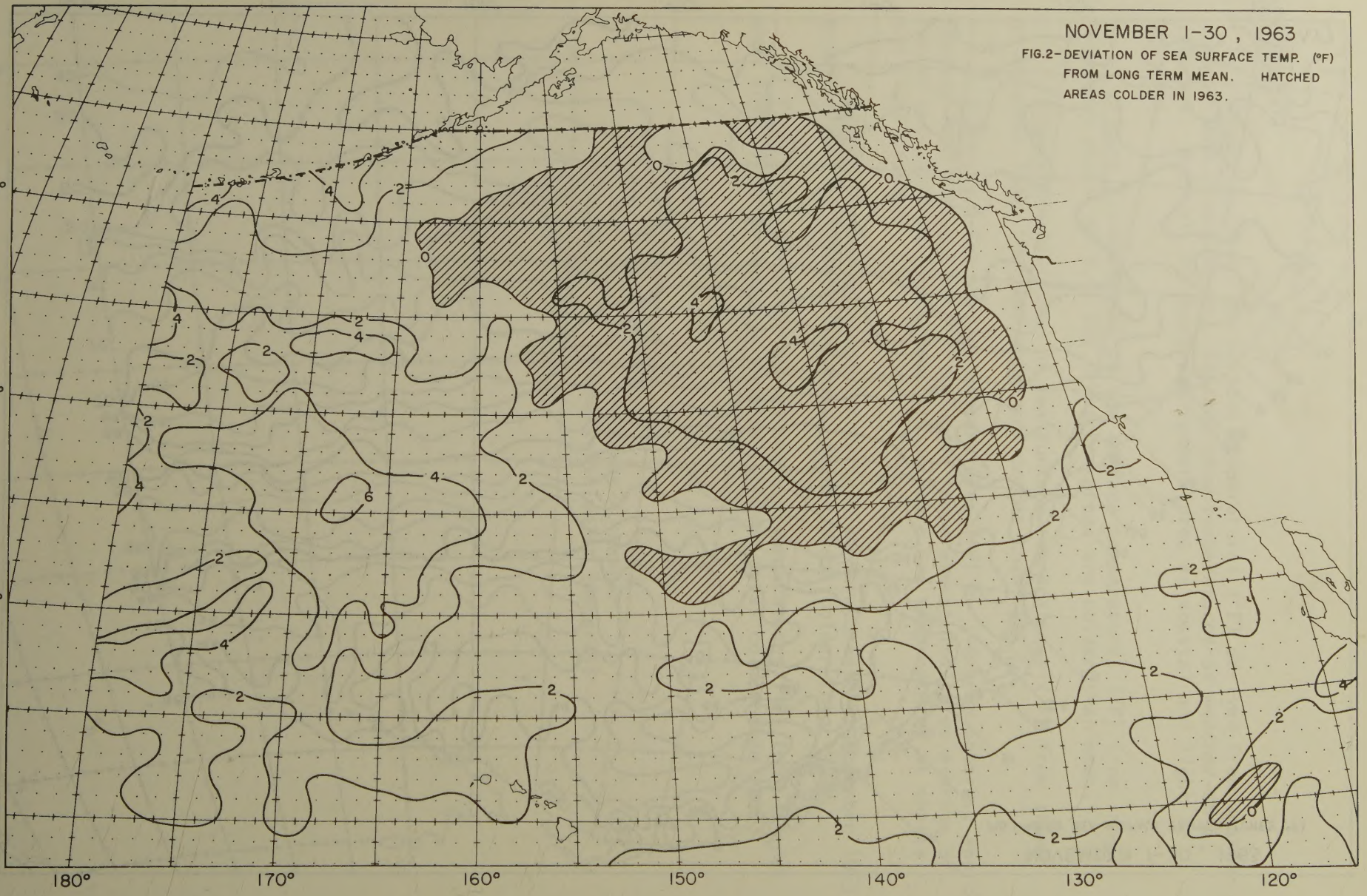
Figure 4.--Sea surface temperatures (°F) by 1-degree squares, approximately 2000 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal and light stations.

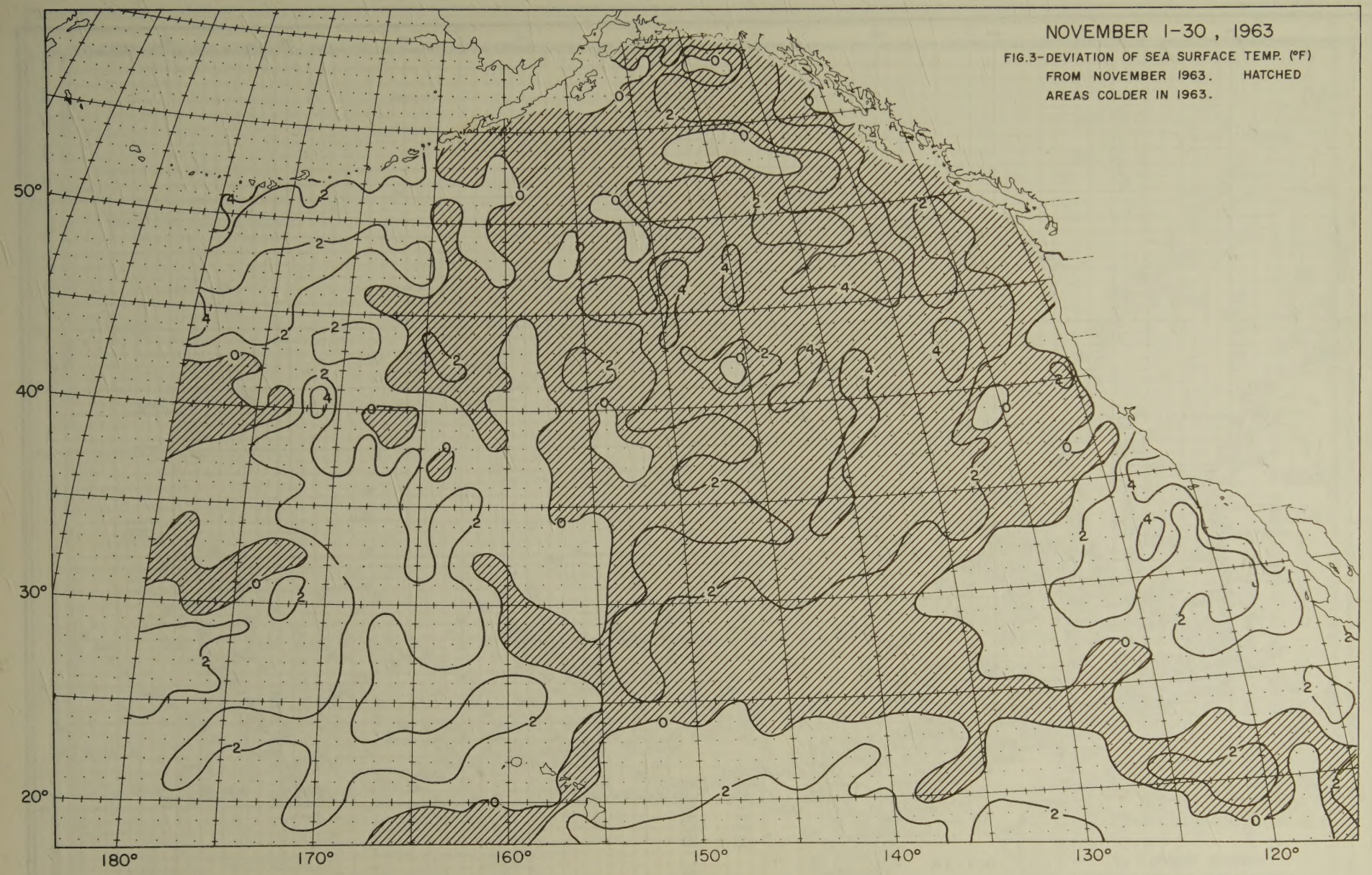
Figure 5.--Deviation of sea surface temperatures (°F) November 1963-November 1962 by 1-degree squares. Shaded areas colder than 1962.

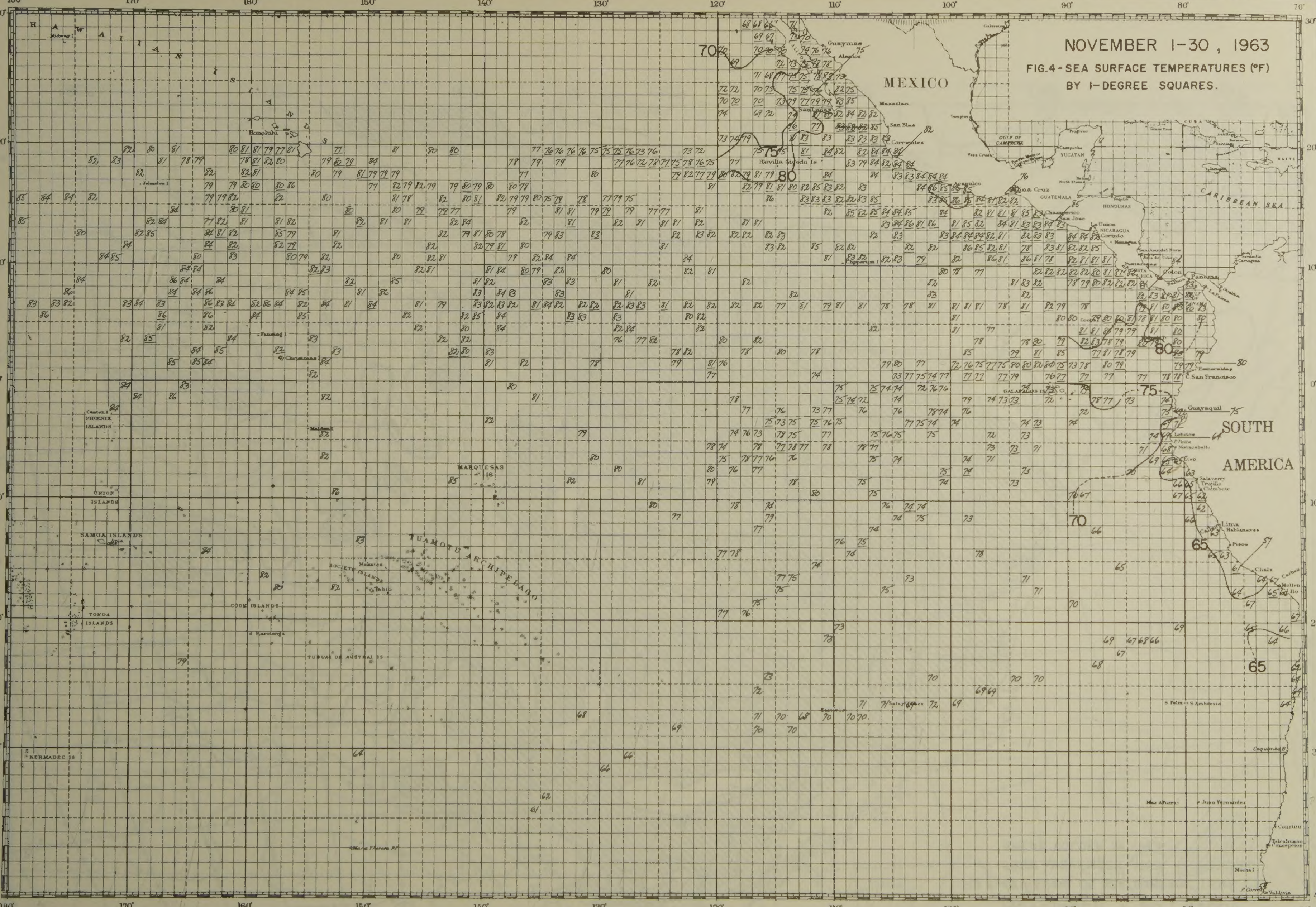
Figure 6.--Deviation of sea surface temperatures (°F) from 12-year mean (1947-1958) by 2-degree squares. Shaded areas colder than 1962.

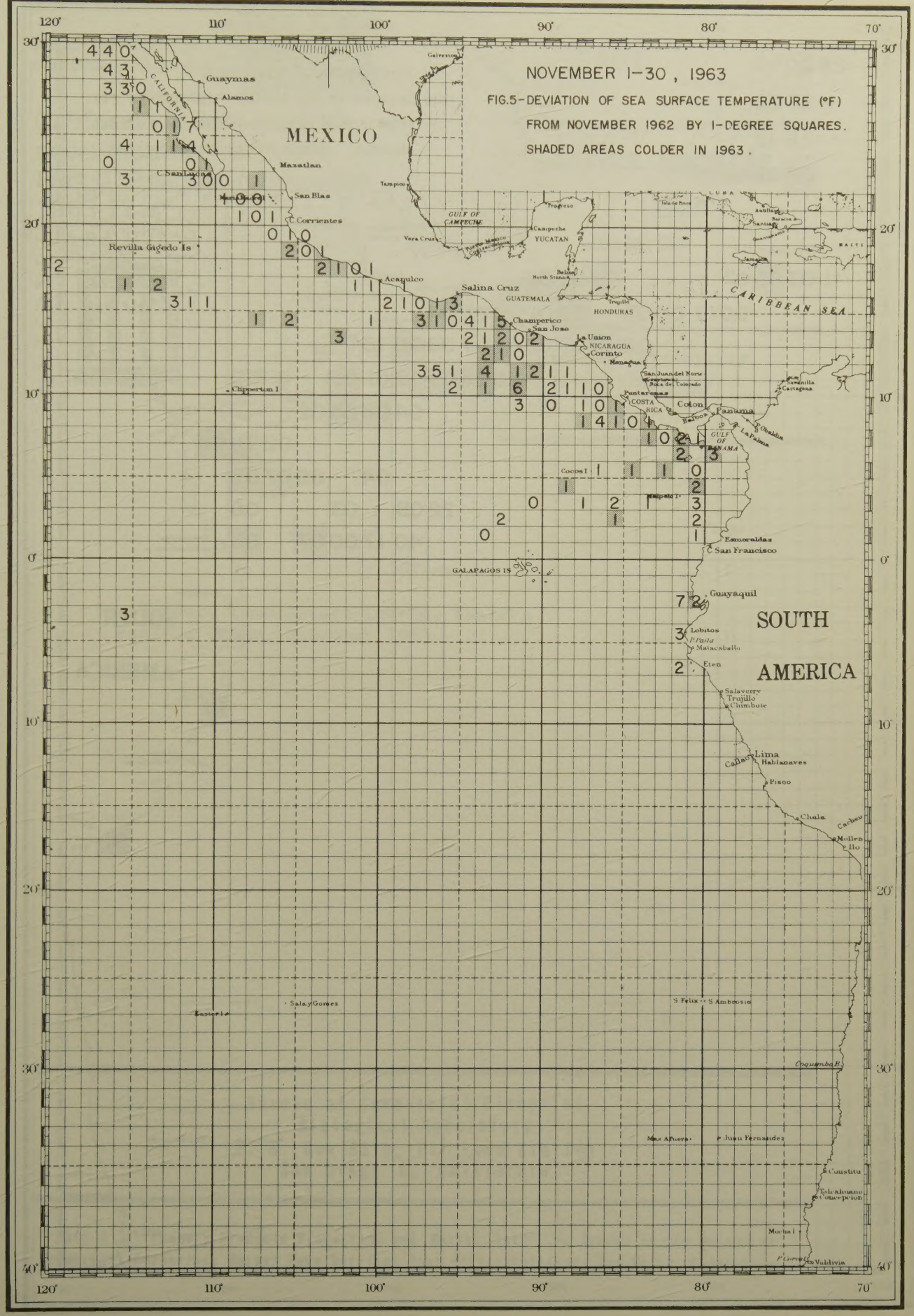
James A. Renner
Fishery Biologist (General)

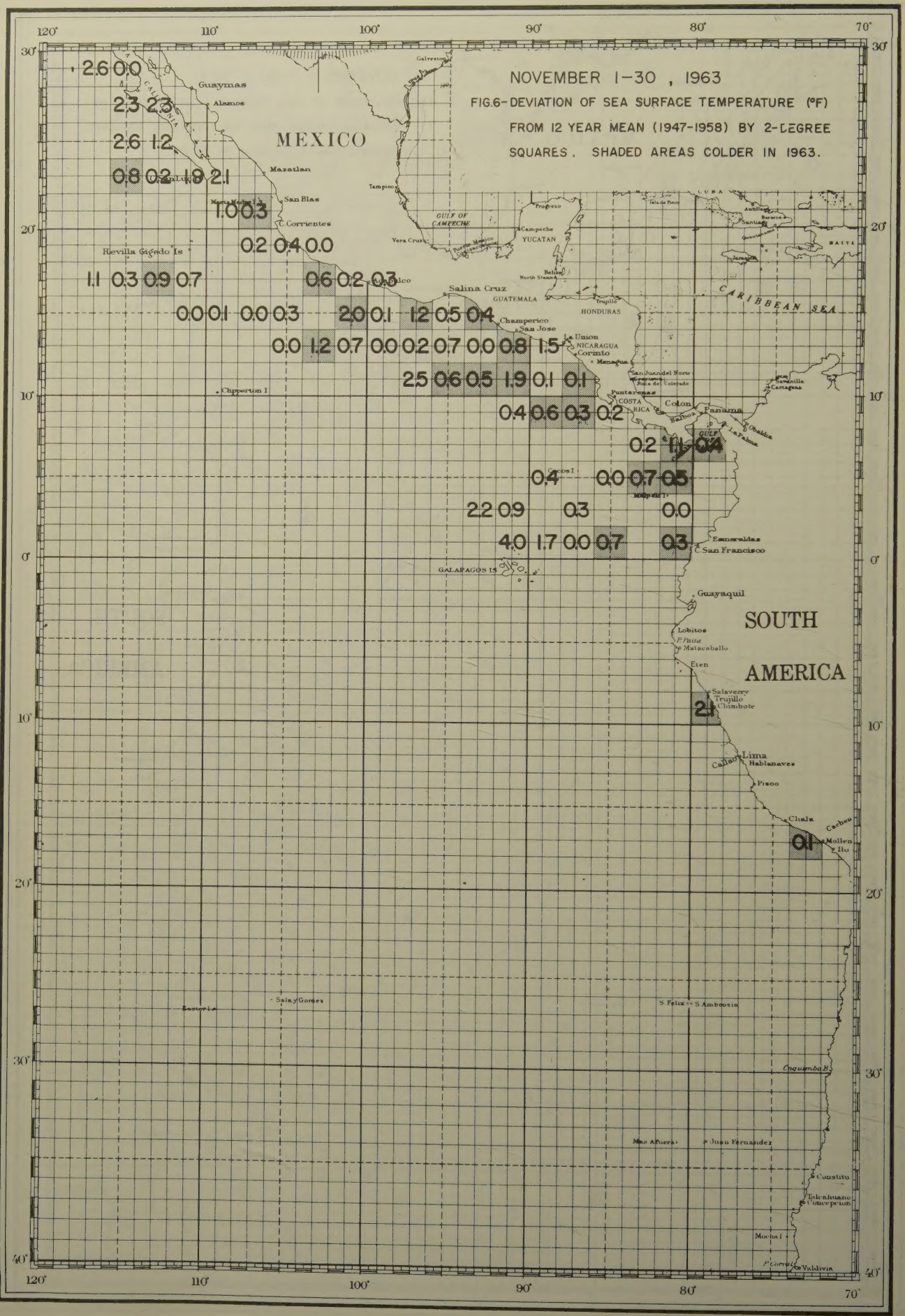

NOVEMBER 1-30 , 1963
FIG. 1-MEAN SEA SURFACE TEMPERATURES (°F)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


NOVEMBER 1-30, 1963
FIG.2-DEVIATION OF SEA SURFACE TEMP. (°F) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1963.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


NOVEMBER 1-30 , 1963
FIG.3-DEVIATION OF SEA SURFACE TEMP. (°F) FROM NOVEMBER 1963. HATCHED AREAS COLDER IN 1963.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


NOVEMBER 1-30, 1963
FIG.4-SEA SURFACE TEMPERATURES (°F)
BY 1-DEGREE SQUARES.
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
HAWAIIAN ISLANDS
MARQUESAS
TUAMOTU ARCHIPELAGO
SAMOA ISLANDS
TONGA ISLANDS
COOK ISLANDS
UNION ISLANDS
PHOENIX ISLANDS
KERMADEC IS
Honolulu
Guaymas
Mazatlan
San Blas
Acapulco
Guayaquil
Lima
Revilla Gigedo Is
Galapagos Is
Valdivia


NOVEMBER 1-30, 1963
FIG.5-DEVIATION OF SEA SURFACE TEMPERATURE (°F)
FROM NOVEMBER 1962 BY 1-DEGREE SQUARES.
SHADED AREAS COLDER IN 1963.
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
YUCATAN
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
GULF OF PANAMA
GALAPAGOS IS
CUBA
HAITI
JAMAICA
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Acapulco
Salina Cruz
Champerico
San Jose
La Union
Corinto
Managua
Chippertun I
Panteneas
Colon
Panama
Esmeraldas
San Francisco
Guayaquil
Lobitos
Talara
Matacaballo
Eten
Salaverry
Trujillo
Chimbote
Callao
Lima
Huacho
Pisco
Chala
Caraveli
Mollendo
Ilo
Sala y Gomez
S Felix
S Ambrosio
Juan Fernandez
Mas Afuera
Constitucion
Talcahuano
Concepcion
Mocha I
Valdivia


NOVEMBER 1-30 , 1963
FIG.6-DEVIATION OF SEA SURFACE TEMPERATURE (°F)
FROM 12 YEAR MEAN (1947-1958) BY 2-DEGREE
SQUARES. SHADED AREAS COLDER IN 1963.
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
YUCATAN
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Salina Cruz
Champerico
San Jose
La Union
Corinto
Managua
Chipperton I
Punta Arenas
Colon
Panama
Balboa
Esmeraldas
San Francisco
Guayaquil
Lobitos
Talara
Eten
Salaverry
Trujillo
Chimbote
Lima
Callao
Hablanaves
Pisco
Chala
Cachau
Mollen
Ilo
Sala y Gomez
Easter I
S. Felix
S. Ambrosio
Juan Fernandez
Mas Afuera
Constitu
Talcahuano
Concepcion
Mocha I
Valdivia
2.6 0.0
2.3 2.3
2.6 1.2
0.8 0.2 1.9 2.1
1.0 0.3
0.2 0.4 0.0
1.1 0.3 0.9 0.7
0.6 0.2 0.3
0.0 0.1 0.0 0.3
2.0 0.1 1.2 0.5 0.4
0.0 1.2 0.7 0.0 0.2 0.7 0.0 0.8 1.5
2.5 0.6 0.5 1.9 0.1 0.1
0.4 0.6 0.3 0.2
0.2 1.1 0.4
0.4 0.0 0.7 0.5
2.2 0.9 0.3 0.0
4.0 1.7 0.0 0.7 0.3
2.1
0.1
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
40°